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Eocene Flora of Northern Crowley's Ridge, Arkansas

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THE EOCENE FLORA OF NORTHERN CROWLEY'S RIDGE, ARKANSAS

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In presenting this preliminary paper on the Eocene flora found on Northern Crowley's Ridge, Arkansas, the geological observations and findings made during this period of study will be presented. At a later date a more factual and more complete paper on this subject will be prepared.

Finding One. NE-NW-Sec. 15, T 20 N, R 8 E, Clay County, Arkansas. Fossil flora were found in abundance at this location. Their matrix was an interstratified tenacious silicious clay. This fossiliferous clay, when first removed, had a light buff color streaked with shades of dark gray. The gray color, in all probability, is derived from the carbon of the flora. Minute pyrite crystals are found throughout this fossiliferous clay. The top soil which overlays it is ferruginous clay, and is slick and sticky when it is wet. The surface of this section is undulating and is almost free of any major growth due to cultivation and pasture. The earth in which these strata of fossiliferous clay are found takes an abrupt drop from the top surface, then slopes at a steep angle to a creek at its base, giving the appearance that the earth is sinking rather than eroding. These strata of fossiliferous clay follow the contour of the steep-angled slope.

The fossil leaves from this location have a brown coloration against a light background of their matrix. One specimen, a fossil replacement of the leaf, is lanceolate in form, with serrate margin. Another is a fossil replacement of the leaf, and is obovate in form, with the margin entire. Two other specimens show both the mold and cast of the same leaf, which is lanceolate in form, with the margin entire, and which bears a close resemblance to our modern Willow Oak. Another specimen is a fossil replacement of the leaf, and it is elliptic in form, with the margin entire.

Finding Two. NW-NW-Sec. 35, T 19 N, R 5 E, Greene County, Arkansas. The fossil flora of this section were found in a stratum of hard blue-gray silicious shale. The topsoil that covers this shale contains sand and small rounded pebbles. This stratum of fossiliferous shale covers and follows the contour of an entire hill which has an area of some 12 acres. The thickness of the shale varies from 2 inches to 2 feet, and its fracture is uneven. No large pieces of shale were found. They had been broken into pieces ranging from 2 or 3 inches to 18 inches in size.

Huge, petrified stumps of the conifer *Cupressinoxylon Calli* were found in an upright growing position with this fossiliferous shale forming around the stumps and above the roots. One stump was removed from the earth and was found to be some 8 feet in diameter. None of the petrified logs of this tree are to be found at this location. Three miles east, however, there are large quantities of such logs.

Many of the fossil flora specimens found at this location are a bright gold and gray-brown in color against the blue-gray background formed by their matrix. One, a fossil replacement of the leaf, is lanceolate in form, with serrate margin. Another shows one large leaf and one medium-large leaf. Both are cordate in form, with serrate margin. Two additional specimens show divided stems or branches with other branches growing from both sides. The center of the stems are branches well organized, indicating a woody center. Two specimens appear to be the fossil of a single bud of a Virbinum. One half of this specimen is embedded in each of the two pieces of shale. Numerous specimens appear to be Monocots, and bear a close resemblance to Elodea. This fossil plant is found in profusion throughout this fossiliferous shale. Below is a photograph showing three specimens of this fossil plant.

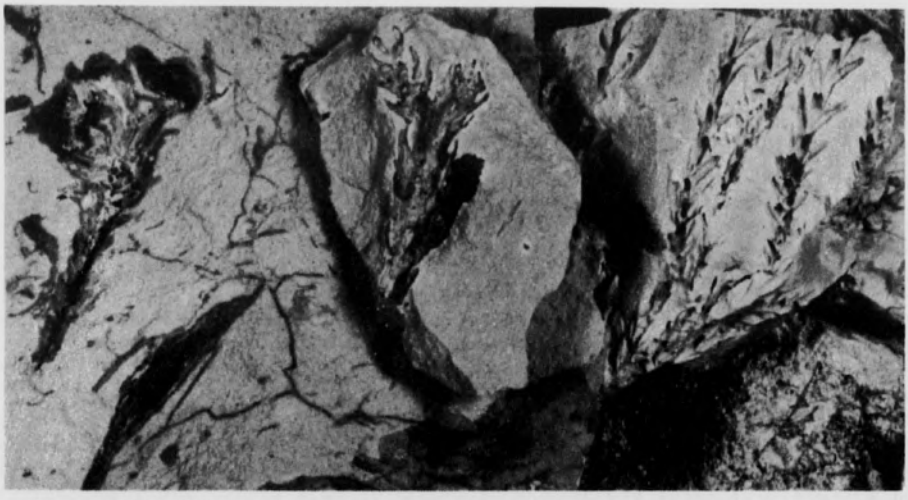

Photo by Richard Perry

Fossil Specimens of Monocots in Fossiliferous Shale
(3 times natural size)

The terrain of this location is undulating and in some places it is thickly populated with trees and underbrush. Just east of this location the area is damp and marshy, and here large quantities of fossiliferous lignite are found, and a very soft form of coal is found a few feet under the surface. Three-quarters of a mile southeast of this location is a sandstone quarry in which fossil flora were found. This sandstone is quite soft when first removed, but after sawing it is placed in the open to harden. To the southeast of McDougle, Section 25, T 20 N, R 7 E, Clay County, Arkansas, is a large area containing many highly-silicified logs embedded in an orange-colored sand. A portion of one of these petrified logs measured 18 feet in length and 3 feet in diameter. These logs fracture easily, and the fracture gives the appearance of having been sawed. Fossilized bark also is found in places on the logs. With the evidence of abundant Eocene fossil flora found on the northern portion of Crowley's Ridge, and the abundant Eocene fossil marine fauna found on the southern portion of the ridge, it appears that during the Eocene epoch of the Tertiary period the northern portion was above water, with the exception of marshy places, while the southern portion was under water.